

[19] Japanese Patent Agency (JP)

[11] Patent Publication (A)

Patent Publication No.: 1996-19370

[43] Publication Date: January 23, 1996

[51] Int. Cl.<sup>6</sup> : A 23 G 3/30

Identification No.:

Intra-agency Classification No.: F1

Patent Examination Not Requested

Number of Claims: 1, document (total 2 pages)

[21] Application No.: 1994-188728

[22] Application Date: July 6, 1994

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## **Title**

### **METHOD OF MANUFACTURING AN AFTER-MEAL CHEWING GUM**

## **Summary**

**Purpose.** The present invention concerns a method of producing an after-meal chewing gum for cleansing the oral cavity after a meal.

**Design.** The gum base of the present invention contains no substance that undergoes a fermentation process in the mouth.

## **Claim**

A method of producing an after-meal chewing gum composed of a gum base that contains no substances that undergo fermentation processes in the mouth.

## **Detailed Description of the Invention**

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### **Field of Industrial Application**

Residual food particles in the mouth undergo a fermentation process after meals, causing dental caries. To prevent dental caries to the greatest possible extent, the present invention proposes a method of producing a chewing gum by which the fermentable substances are dissolved in saliva and swallowed.

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### **Prior Art**

Conventional chewing gum is a confection. Together with chocolate and caramel, it was categorized as a bite-size, western style confectionery. On the other hand, there have been no chewing gums specifically designed based on a concept of "after-meal chewing gums", nor was there any specific method to produce such chewing gums.

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### **Problem to Be Solved by the Present Invention**

After a meal, carbohydrates, proteins, fats, and various other food residues remain in the mouth. They undergo a fermentation process, providing a hotbed for the development of dental caries. Residual sugars are considered to exert a particularly harmful effect on teeth. Thus sweets are often avoided for this reason. However, sugars constitute an absolutely essential nutrient to man; those who engage in rigorous mental and physical activities, in particular, require and must consume a sufficient quantity of sugars. Indiscriminate avoidance of sugars to prevent dental caries can be harmful to the brain or the body on the whole. Dental caries can be avoided by brushing one's teeth after each meal but this can be rather troublesome. One is not always in an area where a facility suitable for tooth

brushing is available. Infants and children frequently consume between-meal snacks and it is difficult to make them brush their teeth after each snack. The best approach to this problem is to make them engage in an action that is equivalent to tooth brushing and still appeals to their taste. Children like chewing gums. They are attracted to the taste of the gum: in addition, the chewing action appeals to them. Of course, the inherent attraction of chewing gums is not limited to children: grown-ups are equally attracted to chewing gums. Chewing actions stimulate salivary secretion. As long as the object that is being chewed does not release sugar, the saliva that is secreted washes out the residual sugar in the mouth while the gum is being chewed. There is a need to develop a chewing gum that is most suitable for this purpose.

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#### **Method to Solve the Problem**

The present invention was designed to respond to this need. Specifically, it presents a method to manufacture an after-meal chewing gum with a gum base that contains no substances that undergo a fermentation process in the oral cavity.

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#### **Action**

In this manner, it is possible to manufacture a chewing gum that contains no fermenting substances (thus exerting no ill effects on teeth) and serves only as a stimulus for saliva secretion. In other words, an after-meal chewing gum is easily produced according to this method.

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#### **Example**

The chewing gum of the present invention is totally free of substances such as sugar and candy that will ferment in the oral cavity. Therefore the product tends to be tasteless. There is a need to add some flavor but it is difficult to find a suitable flavor. Salt is harmless and it would be desirable to produce a satisfactory taste by using salt. For sweetening agents, only artificial sweeteners (such as saccharin) are available. Further studies are needed to use these sweeteners effectively. To create an attractive flavor, we may have to rely on chemical flavors. Studies are also required on the advisability of using these flavors. As a fragrance, purified mint may be used. In other circumstances, caffeine may be combined. The use of calcium, doubling as a plasticizer as well as a nutrient, may be advisable. It is evident that an after-meal chewing gum that is acceptable to consumers can be produced in this manner.

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#### **Effects of the Present Invention**

If the after-meal chewing gum of the present invention is used after each meal and snack, it is possible to eliminate fermenting substances sufficiently to inhibit bacterial growth in the mouth, keeping the oral cavity clean, and effectively preventing dental caries. The residual sugar in the

mouth, in particular, penetrates and eventually weakens the teeth, which will be sufficiently prevented by an after-meal chewing gum. If the purpose of the after-meal chewing gum is understood, it will be used widely not only among children but also among the adult population. Sugar has been avoided by many not for weight reduction alone; indeed, many refuse to consume sugar-containing food for its unpleasant after-taste or its harmful effects on the teeth. When after-meal chewing gums are available, sweetened food (such as cakes, buns filled with sweetened bean jam, and ice cream) can be consumed by children and adults alike, at any time, anywhere, without any concern for their ill effects. Thus sugar consumption will increase, to the benefit of sugar-producing countries. Indeed, a harsh situation prevails in the world sugar market. There is a strong possibility that this after-meal chewing gum will gain in worldwide popularity; and the resultant increase in sugar consumption will somewhat ease the tension. As toothpastes have come to be used by almost everyone in the world, this after-meal chewing gum will be disseminated among people throughout the world. The world population has exceeded 5.3 billion. If each person were to consume an amount of this gum costing 30 yen per day, its annual consumption would come to 58.035 trillion yen. A new commodity with such a wide distribution is indeed rare. We hope that this new product will be accepted by people without encountering any resistance and eventually be regarded as a necessity as great as toothpaste now is. However, popularity of this after-meal chewing gum must be accompanied by dissemination of good manners and improvement in the public conscience. Otherwise streets will be littered with discarded gum in a manner similar to cigarette butts. The sale of this after-meal gum must parallel education of the public on the proper method for disposing the gum after it has been chewed. It would be ideal to develop a gum base that will become gradually smaller as one chews it (and would eventually be swallowed completely), so that the problem of "gum pollution" is eliminated.